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ABSTRACT

This report describes a technique which can be used to provide both formative and summative evaluation of television programs designed to promote educational development in 3-, 4-, and 5-year-old children. The daily half-hour program evaluated is part of an Appalachia Educational Laboratory project, now in its second year. (Other project components are weekly visits in homes by paraprofessionals, and weekly visits by a mobile classroom.) Of the 170 TV programs transmitted in the first two years, observational data was collected on 133. The telecasts, designed to elicit overt responses from children, made possible a systematic observational evaluation of viewer responses. Each of eight paraprofessionals watched the program with a different child every morning so that, in a random fashion, all 270 children were observed an equal number of times. The observer coded children's responses while viewing the TV program and rated them on a standard tally sheet. First year and second year programs were compared on (1) the ratio of responses to questions asked by the TV teacher, (2) the ratio of negative reactions to enthusiastic reactions, and (3) the average number of enthusiastic reactions. Results indicate that systematic observational systems can provide formative evaluation of preschool TV programs to guide changes in presentation techniques, content, and emphasis. A summary of the AEL Early Childhood Program is available as PS 004 889. (AJ)

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ANALYSIS OF CHILDREN'S REACTIONS TO AEL'S PRESCHOOL TELEVISION PROGRAM

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Technical Report No. 9

PS 004896

Division of Research and Evaluation
Appalachia Educational Laboratory
Charleston, West Virginia

December, 1970

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ANALYSIS OF CHILDREN'S REACTIONS TO AEL'S PRESCHOOL TELEVISION PROGRAM*

The Appalachia Educational Laboratory has recently completed its second year of a three-year project to develop a viable alternative to conventional kindergartens which are prohibitively expensive in mountainous terrain. This alternative consists of a daily half hour television program, Around the Bend, weekly visits in homes by paraprofessionals, and weekly visits by a mobile classroom. Assuming that instruction is most effective when the learner is an active participant, the activities in all three components are designed to increase the involvement of the three-, four-, and five-year-olds participating in the project.

METHOD

This report describes a technique which can be used to provide both formative and summative evaluation of television programs designed to promote educational development in three-, four-, and five-year-old children. As one might expect, the television component has the greatest difficulty in promoting this interaction. Therefore, an effort was made to identify those activities and techniques which are most effective in eliciting overt responses from the viewers. The television program focuses around a young woman, "Patty," who, as a friend of the viewers, has experiences and does things in her home which viewers often do at the same time in their homes. The activities are designed to foster a strong personal relationship between Patty and the viewers. This, and the tendency of preschool children to react overtly during the telecast, makes it possible to use a systematic

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*This report was prepared by Dr. George L. Miller, who is responsible for formative evaluation of the AEL Early Childhood Education Program and works out of the AEL field office at Beckley, West Virginia.

observational system to evaluate the effect of each program on the viewers. The categories of this system and the basic ground rules are presented in Table 9-1.

The project employs eight paraprofessionals, each of whom watch the television program with a child every morning in his home. The program is observed with a different child each day. In a manner as inconspicuous as possible, each paraprofessional codes the behavior of the child she is observing on the code sheet presented as Attachment 9-1. The columns indicate the categories of behavior. The 28-minute program is divided into five, five-minute intervals and one, three-minute interval as indicated by the rows.

Everytime the television "teacher" makes a suggestion, asks a question, or attempts to elicit a response from the viewer, the home visitor makes a tally in one of the first three columns. This tally indicates whether the viewer responded verbally, non-verbally, or not at all. The remaining four columns represent viewer behaviors that were not elicited. A tally is made in the appropriate column each time one of these behaviors occur. To the right of the matrix are the numberals 0, 1/4, 1/2, 3/4, and the word ALL. At the end of each five-minute interval, the paraprofessional circles the figure that most closely represents the amount of time the viewer had his eyes on the television screen.

At the bottom of the code sheet is a place to write remarks. This area is used to describe unusual circumstances occurring during the program such as prompting by the mother, a paddling, or anything that had a significant positive or negative effect on the viewer. Reactions, in behavioral terms, to specific segments are also written here.

The group of children observed watching the program each week is rotated so that, in a random fashion, all 270 children in the sample are

TABLE 9 -1

TELEVISION VIEWER BEHAVIOR: AN OBSERVATIONAL SYSTEM

1. Physically Responds to Suggestions, Directions,or Questions: The viewer dances, paints, or moves as suggested or directed by the television "teacher" or shakes his head yes or no to a question.

2. Verbally Responds to Suggestions, Directions,or Questions: The viewer responds by saying something; repeating a poem, words, or letter; answers yes or no.

3. No Response to Suggestions, Directions, or Questions: The viewer does not comply as requested by the television "teacher" either physically or verbally.

4. Verbal Enthusiasm: The viewer says something that indicates he is excited about something in the program. This can be a sound of glee as well as an intelligible word.

5. Non-verbal Enthusiasm: Physical motions such as the clapping of hands that indicate the viewer is excited about something in the program.

6. Verbal Indication of a Negative Reaction: The viewer yawns aloud, says words or makes sounds that indicate disgust, boredom, or a negative feeling about the program.

7. Non-verbal Indication of a Negative Reaction: The viewer looks away from the television screen, leaves the room, plays with a toy or engages in other actions indicating disgust, boredom, or a negative reaction to the program.

GROUND RULES:

1. Whenever verbal and non-verbal behavior occur simultaneously, the tally is placed in the verbal category.

2. When the television "teacher" requests the viewer to engage in a sequence of behavior or say a sequence of words or letters, doing the whole sequence results in only one tally.

3. When the observer is not sure the television "teacher" has requested an overt response, no tally is made in the first three categories. If, despite the vagueness of the "teacher's" remark the viewer responds, this behavior is coded in category 4 or category 5.

4. The observer initially encourages the viewer to watch the program with her but does not coerce him. However, despite the actions of the viewer, the observer watches the whole program and gives the impression of being quite interested in it.

observed an equal number of times. The eight code sheets for each day are then compiled to form one matrix that is interpreted. The following information can be found for each five-minute intervals as well as for the program as a whole:

1. The proportion of questions, suggestions, and directions that elicited a verbal or non-verbal response from the viewer.

2. The proportion of unelicited positive behavior to unelicited negative behavior of the viewer.

3. The average number of acts of unelicited positive behavior.

4. The proportion of time spent by the viewer with his eyes on the television screen.

It must be remembered that the data are taken from observing only eight viewers of each television program. Thus, the data are unreliable in that conclusions cannot be drawn from one observation. However, when a particular programming technique which occupies most of a five-minute interval is used on several occasions and that interval of time consistently rates high or low on one of the calculated variables, a decision regarding its continued use can be objectively and reliably made. When used in this manner, the data gathered using this observational system can be used to answer formative evaluation questions such as those below:

1. What types of questions and techniques of questioning are most effective in eliciting verbal responses?

2. What is the optimum number of questions that should be asked in a given time interval, given a specific purpose?

3. What activities are most effective in eliciting verbal and non-verbal indications of enthusiasm?

4. What types of music and songs are most effective in getting viewers to dance and sing?

5. What techniques are most likely to get viewers to repeat the sounds of letters and learn given cognitive skills?

6. What camera techniques, types of animation, and method of monologue are best in eliciting the desired effect on the viewer?

7. What are the optimum lengths of various activities in terms of achieving given objectives?

8. What types of stories should be read and what types of presentations are most effective in maintaining interest?

Finding answers to these types of questions is made easier by having written scripts of each program broken into five-minute segments or by having a secretary record a description of what is taking place during each segment. Recording the number of questions, suggestions, and directions stated by the television "teacher" enables the checking of coder reliability.

SUMMATIVE RESULTS

Of the 170 programs transmitted during the second year, observational data of viewer responses were collected on 133 programs. These included 37 programs produced during the first year and 96 produced during the second year. These two groups of programs were compared using (1) the ratio of responses to questions, (3) the ratio of negative reactions to enthusiastic reactions, and (3) the average number of enthusiastic reactions.

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TABLE 9-2

COMPARISON OF FIRST AND SECOND YEAR PROGRAMS ON THREE VARIABLES

Variable	1st yr. $\bar{x}$ programs	2nd yr. $\bar{x}$ programs	t*	sign
Response Ratio	59.22	73.53	4.86	.001
Enthus.Ratio	59.65	73.22	3.46	.001
Ave # of Enthus.Res.	5.46	8.38	3.44	.001

*t-test of difference between uncorrelated means.

Although only the best of the 170 programs produced during the first year were repeated, the programs produced during the second year were significantly more effective in eliciting responses, maintaining a positive attitude toward the program, and generating enthusiasm. The data also indicated age and sex differences in the subjects' reactions to the program. The four-year-olds were most enthusiastic about the program, followed by the three- and then the five-year-old subjects. The five-year-old males were least enthusiastic about the program and at all age levels girls responded overtly to questions, suggestions, and directions of the television "teacher" a greater proportion of the time than did boys.

Based on overt behavior of viewers, the television program was best liked by the four-year-old subjects and was of more interest to girls than to boys.

CONCLUSIONS AND IMPLICATIONS

The use of systematic observational systems to provide formative evaluation of preschool television programs can be of significant value in guiding changes in presentation techniques, content, and emphasis. Given a larger number of observers, which in this study were paraprofessionals, or more specific needs, a much more sophisticated observational system could be developed to provide objective data on which to base these decisions.

The television lessons broadcast during the second year (1969-70) of the ECE program held the children's interest a greater proportion of time than did the lessons telecast during the first program year.

ATTACHMENT 9-1

Television Response Code Sheet

NAME _____ H.V. _____ DATE _____

AGE _____ SEX _____ GROUP _____

	NVR	VR	NR	V. ENTHUS	NV ENTHUS	V NEG	NV NEG					
1st 5 min.								0	¼	½	3/4	ALL
2nd 5 min.								0	¼	½	3/4	ALL
3rd 5 min.								0	¼	½	3/4	ALL
4th 5 min.								0	¼	½	3/4	ALL
5th 5 min.								0	¼	½	3/4	ALL
last 3 min.								0	¼	½	3/4	ALL

REMARKS: